

Adult Lymphoma: Comparison of Whole-Body Diffusion weighted sequence MR Imaging with an Enhanced PET/CT Reference for Initial Staging

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Purpose: To compare the diagnostic value of whole-body anatomic magnetic resonance (MR) staging of adolescent lymphoma to an enhanced positron emission tomographic (PET)/computed tomographic (CT) as reference standard.

Materials and Methods Thirty-one subjects (age range, 27.3–48.0 years; 18 male, 13 female) with histologically proved lymphoma were prospectively evaluated. Pretreatment staging was performed with whole-body DWI MR imaging, fluorine 18 fluorodeoxyglucose PET/CT, and contrast agent–enhanced CT. Eleven nodal and 11 extranodal sites per patient were assessed on MR imaging by radiologist in consensus, with a nodal short-axis threshold of >1cm and predefined extranodal positivity criteria. The same sites were independently evaluated by a nuclear medicine physician on PET/CT images. Disease positivity was defined as a maximum standardized uptake value >2.5 or nodal size >1 cm and further evaluated by κ value .

Results: There was very good agreement between DWI MR imaging and the enhanced PET/CT reference standard for nodal and extranodal staging ($\kappa = 0.96$ and 0.86 , respectively) which improved following elimination of perceptual errors ($\kappa = 0.97$ and 0.91 , respectively). The sensitivity and specificity of DWI MR imaging (following removal of perceptual error) were 98% and 99%, respectively, for nodal disease and 91% and 99%, respectively, for extranodal disease.

Conclusion: Whole-body DWI MR imaging of adult lymphoma can accurately depict nodal and extranodal disease and may provide an alternative nonionizing imaging method for anatomic disease assessment at initial staging.